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ABSTRACT

A program combining cost-free searching of the National Technical Information Service (NTIS) database and document delivery to faculty members was offered at the Kansas State University Libraries. NTIS report usage was monitored from May 1987, five months prior to the onset of the study, until May 1988, at which time the program was terminated. During the initial six months of the program, service was given only to the biochemistry, chemical engineering, chemistry, and geology departments. In the last two months, the program was broadened to include other departments. In all, 19 searches were performed for 16 different individuals. Despite a large variance, there was a significant increase in the usage of NTIS reports during the program compared with the previous five month period. In addition, a survey of participants revealed a preference for online searching to the use of printed indexes and a positive view of the value of NTIS literature. Seven references are listed. The appendix includes the questionnaire used to profile research areas of interest, an NTIS report request form, and the participant questionnaire and results. (MES)

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ASSISTING SCIENTIFIC AND TECHNICAL RESEARCH
THROUGH SUBJECT ORIENTED BIBLIOGRAPHIES OF NTIS REPORTS*

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ABSTRACT

A program combining online database searching and document delivery was conducted at Kansas State University. A survey of document use demonstrated increased usage of the NTIS report collection during the course of the program. A survey of participants reveals a preference for online searching to the use of printed indexes and a positive view of the value of NTIS literature.

INTRODUCTION

The federal government spends \$50 billion dollars annually to support research and development. Much of this work is collected and disseminated through the National Technical Information Service (NTIS), an agency of the U.S. Department of Commerce. NTIS has accumulated approximately 2 million items since its inception and adds 75,000 items per year to its collection (NTIS, 1986). These reports cover government sponsored research on a wide variety of pure and applied scientific disciplines. Despite the value of NTIS reports they are infrequently used. Accessed almost entirely through government produced indexes, NTIS reports rarely appear in the popular commercially-produced indexes which are commonly used by most researchers. These reports are seldom cited in bibliographies, a fact that exacerbates the difficulty in their access. Additionally, since these reports are often difficult to retrieve through the government produced indexes, librarians often lack experience with their use. A study by McClure, Hernon and Purcell (1986) found that librarians answered only 41% of a basic set of NTIS reference questions correctly.

Concern with limited access to NTIS documents has been an issue of increasing interest in recent years (Fraser and Fisher, 1987; Hernon and McClure, 1984; Hernon and McClure, 1986; McClure and Hernon, 1983; McClure, Hernon and Purcell, 1986; NTIS, 1986; NTIS, n.d.). Discussion on improving usage has largely focused upon library education (McClure and Hernon, 1986; NTIS, 1986) despite the fact that few of the potential users of this service would have the time or inclination to participate in library training programs which are often seen as the domain of college freshman.

The Kansas State University Libraries provide an vivid portrayal of the general state of NTIS report usage. The KSU Libraries have accumulated NTIS documents for over 38 years and hold

over 500,000 NTIS reports. The preponderance of these are sponsored by the Department of Energy. These DOE supported projects account for 20% of the reports NTIS produces (NTIS, n.d.) and are relevant to ongoing research in several KSU departments. Despite this substantial collection of reports there is little faculty or student awareness of the documents and usage is extremely low. Through a grant from the Council on Library Resources we were able to offer a cost-free program combining database searching and document delivery to faculty members in science, engineering and related departments. As part of this investigation NTIS report usage was monitored before and during the program and a survey of participants was conducted.

DESCRIPTION OF RPROGRAM

Bibliographies of NTIS (National Technical Information Service) reports pertaining to research programs at Kansas State University were compiled by conducting online searches of the NTIS database. Results were limited to Department of Energy sponsored research where possible, as a plurality of Kansas State University's collection of NTIS microfiche are DOE reports. Members of four primary target departments - Delbert Mueller (Biochemistry), Liang-tseng Fan (Chemical Engineering), M. Dale Hawley (Chemistry) and Richard Busch (Geology) -- served as liaisons to publicize the program and encourage faculty participation. The solicitation of requests from other departments relevant to the project were achieved through campus-wide publicity in library and graduate school publications. For the first six months, participation in the program was restricted to the four primary departments. In the last two months, advertising was increased and applications were accepted from all departments performing research in areas of science and technology. Inclusion in the graduate school's "Research Notes", a pamphlet concerning grants related information proved to be an effective means of advertising the program.

Interested faculty completed a form describing the topic they wished searched (Appendix 1). Online searches were done in the presence of clients and results were usually printed offline. Participants would return request forms (Appendix 2) indicating the reports they were interested in receiving. Reports, usually on microfiche, could be held for viewing in the library or delivered to the faculty member. Requested reports not in the collection were ordered through the NTIS "Quik-order" process. Paper copies were provided at cost, if requested. A work study worker retrieved and ordered reports and delivered

materials to faculty members at their offices.

The survey of document use began in May of 1987, five months prior to the onset of the study, and continued until May 1988 at which time the program was terminated. The results of the usage survey may be seen in Figure 1. At the end of the program a survey was sent to the participants of the program concerning their use of the NTIS literature and the impact this program. A copy of that survey with the results obtained is presented in Appendix 3.

RESULTS AND DISCUSSION

During the initial six months of the program service was given only to the departments represented by the co-sponsors of the grant: Biochemistry, Chemical Engineering, Chemistry, and Geology. In the latter two months the program was broadened to include other departments for which the NTIS literature was deemed relevant. The addition of these departments to the project's base increased the demand for reports not in Kansas State's collection. This resulted in more reports being ordered than had been anticipated. In all 19 searches were performed for 16 different individuals. Three individuals represented there departments for more than one research project. Participants were from seven different departments; the most active department was Chemical Engineering with five searches and four participants.

Despite a large variance, there is a significant difference between the usage of NTIS reports before and during the program (Figure 1). The validity of using the five month period of May through September as a control period may be open to debate as overall library usage is down during the summer. However, experience suggests that summer use of the library by researchers is at least as high as during the academic year. Report use tends to follow the timing of search requests, being heaviest during the beginning and end of the program. The 129% increase in the number of reports used per month suggests a positive impact. As some faculty obtained reports directly from the collection, rather than request them through the program, it was impossible to collect data on what percentage of the increase was due directly to the database searches and what percentage of use, if any, was due to carry-over interest in the NTIS collection. However, it was clear that the majority of the document used during the study period were from the database searches.

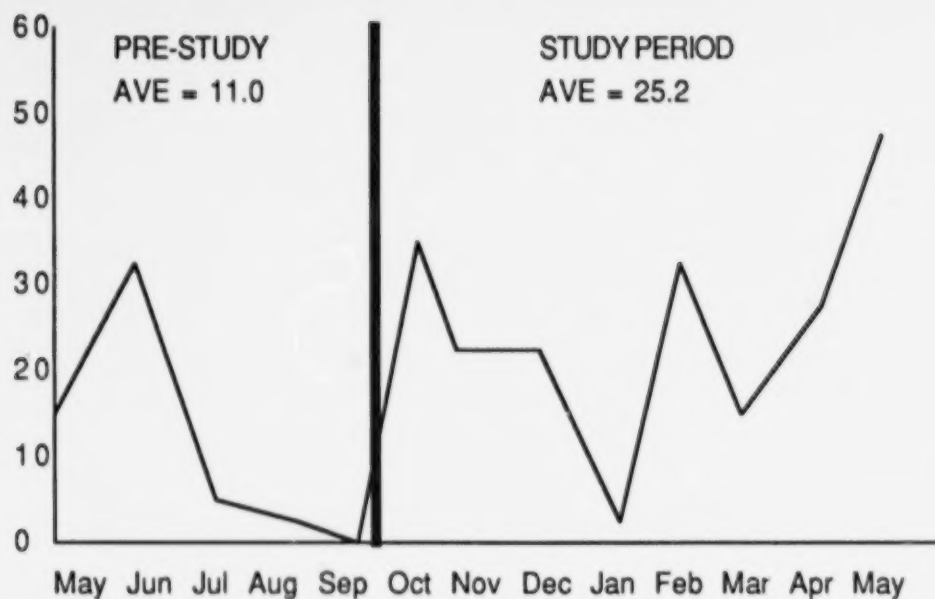


FIGURE 1

This graph demonstrates the number of NTIS reports used from May of 1987 to May of 1988. The vertical line divides the use before and during the study period.

The survey of participants provides results that confirm the frequently repeated warning that the academic community is not well informed about the nature and availability of NTIS reports. The 13 respondents to this survey comprise a small population of users. However, they provide a rare opportunity to survey a largely neophyte population that has an in-depth experience with the reports literature. Of the 13, only four had used NTIS reports more than five times. Despite this, 11 indicated that they intended to continue using NTIS reports. Most of the individuals (9 of 13) rated NTIS reports as useful as the journal literature, but only two of 13 located NTIS references when they researched a topic.

This inability to locate reports is reflected by the low estimation of printed indexes in locating NTIS literature. Six participants rated printed indexes as being usually ineffective in locating NTIS reports, while five felt they were moderately effective. Only one person rated the printed

indexes as very effective. Online searching averaged a full rank higher than printed indexes in user rating (2.23 versus 3.42). Nine of 13 respondents considered online searching a very effective means of locating NTIS reports.

Survey participants were rather neutral about delays and expenses involved in obtaining report documents. The majority (11 of 13) indicated that they could accept delays for some or most items. Five indicated a general willingness to pay for NTIS database searches; six suggested that their willingness to pay for the service would depend upon the information need. Of the 13, twelve indicated that the approach used in this program had a beneficial (10) or very beneficial (2) effect upon their use of the NTIS documents.

These results indicate a positive response to the NTIS literature when the retrieval and supply of documents is expedited. Given the infrequent indexing of the NTIS reports in printed indexes, the indifference of most users to *Government Reports Announcements & Index* and the fact that most libraries collect NTIS reports as microfiche it is not surprising that these reports remain a largely hidden resource. For years we have heard that the problem with the low usage of NTIS reports is one of user education, that awareness of the inherent value of the documents would attract the hoards of users they deserve. Experience should tell us that the system of dissemination established for these documents is the impediment we face. Commercial vendors quickly realized the user appeal of CD-RO products. The appeal lies in the rapid and easy retrieval of information. The key to improving NTIS utilization lies in updating the means by which the reports are retrieved and supplied. An ideal system would allow instant retrieval of citations and full reports.

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APPENDIX 1

FARRELL LIBRARY NTIS RESEARCH BIBLIOGRAPHY SERVICE

RESEARCH PROFILE FORM

Name _____ Date _____

Department _____

Office phone _____

The purpose of this form is to acquire a detailed profile of an area of investigation that is of interest to several KSU researchers. The information you provide should encompass the broader interests of your laboratory or department within a specific field of research. Please complete this form and send it, together with any supporting documents, to:

Robert Schwarzwald
Farrell Library / KSU campus

Number of faculty members, postdoctoral
researchers and graduate students involved in the research _____

Describe in detail the subject you wish searched. Include information on subtopics of special interest, but provide an overview of the topic. Mention any areas of proposed research pertaining to the broader area of investigation.

List specific individuals or laboratories that are active in this area of research.

List related areas of research that are not of interest to your laboratory or department.

Attach to this form:

- 1) departmental literature detailing this area of research;
- 2) reprints of relevant papers; and/or,
- 3) a short bibliography of relevant papers.

Comments:

APPENDIX 2

FARRELL LIBRARY NTIS RESEARCH BIBLIOGRAPHY SERVICE

NTIS REPORT REQUEST FORM

Name _____ Date _____

Signature _____

Department _____

Office phone _____

This form is to be used to retrieve NTIS reports cited in NTIS research bibliographies. Most of these reports are available in Farrell Library in the form of microfiche. Please use separate forms to request reports listed in different bibliographies. Several reports from the same bibliography may be requested on a single form.

Code number of research
bibliography citing the report/s of interest _____

Report title/s and number/s of desired report/s:

I would like the above report/s (check one):

_____ sent to me via campus mail (microfiche copy)

_____ held for my use at Farrell Library (third floor, Government Documents reference desk)

_____ copied from the microfiche to paper at the cost of \$0.10 per page. Photocopied reports may be picked up at the main reference desk (Farrell Library, first floor).

_____ I have included a departmental requisition to cover photocopying costs.

_____ I will pay for the copying when I pick up the report.

APPENDIX 3

CLR NTIS GRANT PROJECT, PARTICIPANT SURVEY

Name: _____

Department: _____

Please answer the questions below by circling or marking the response you feel is most appropriate. Please return this survey by Friday May 27, 1988.

Before exposure to this program I have used NTIS documents:

1) 0 times 2) 1-5 times 3) 6-10 times 4) more than 10 times

ANS: 3 6 2 2

I (will will not) use the NTIS documents in the future. (circle one)

ANS: will=11; will not=1; may=1

I used the NTIS documents located through this program for:

_____ grant proposal 4
 _____ research 12
 _____ teaching 1
 _____ other (please elaborate) 1 (preparation of a database)

How useful do you find NTIS reports in relation to the journal literature?

| <-- AVE=2.77

|-----|-----|-----|-----|

much more	more	as	less	much less
useful	useful	useful	useful	useful
ANS: 1	2	9	1	0

How often do you find references to NTIS reports when you are researching a topic?

| <-- AVE=3.46
 |-----|-----|-----|-----|
 often regularly occasionally seldom never
 ANS: 0 2 5 4 2

How effective are the printed indexes in locating NTIS reports?

| <-- AVE=3.42
 |-----|-----|-----|-----|
 extremely very moderately usually worthless
 effective effective effective ineffective
 ANS: 0 1 5 6 0

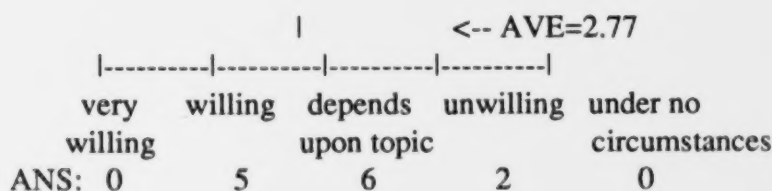
How effective is online searching in locating NTIS reports?

| <-- AVE=2.23
 |-----|-----|-----|-----|
 extremely very moderately usually worthless
 effective effective effective ineffective
 ANS: 1 9 2 1 0

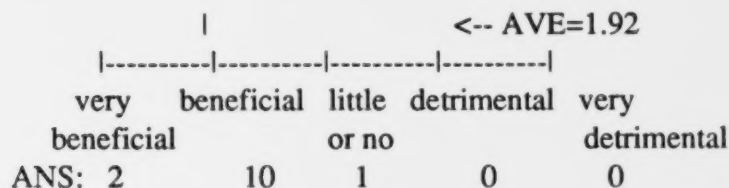
Ordering or borrowing NTIS documents not available in Farrell Library usually takes two to four weeks. How crucial a factor is this to your use of these documents?

| <-- AVE=2.46
 |-----|-----|-----|-----|
 time factor can accept can accept usually cannot use
 unimportant delay for delay for cannot reports not
 most items some items wait available now
 ANS: 1 8 5 0 0

This project has involved free online searches of the NTIS database, assistance in locating reports, and the purchase and delivery of NTIS reports not held by the library. How willing would you be to pay for this service?



What impact has the approach utilized in this project had upon your use of the NTIS documents?



If you have additional comments I would welcome a letter detailing your thoughts on this project or the NTIS document literature. If you do not have the time to submit a letter you may use the space below for comments. Thank you for your participation in this project.

One letter was submitted, attached, other comments included the following points:

- 1) interlibrary loan of NTIS materials is usually time consuming and ineffective;
- 2) searching the NTIS literature, "opened the door," on a new literature for me;
- 3) NTIS search included information on in-process research;
- 4) insufficient funds available for purchase of NTIS reports;
- 5) NTIS reports covered research that had not been published in other forms; and,
- 6) this project was helpful to us in our research.



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May 18, 1988

Dr. Robert Schwarzwald
Farrell Library
CAMPUS

Dear Bob:

I found the NTIS search particularly valuable in identifying important support literature related to my ongoing research project funded through the U.S. Department of Agriculture. I was not aware of many of the reports identified in the search.

Thank you for your assistance.

Sincerely,

A handwritten signature in cursive script, appearing to read "Duane".

M. Duane Nellis,
Associate Professor & Head

MDN/pb